Quarterly Report

Covering October 1, 2005 to December 31, 2005

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Project Title

Fish Passage in Montana Culverts Phase II – Passage Goals

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Introduction

This progress report covers work completed between October 1, 2005 and December 31, 2005. Work on the project during this period has been primarily devoted to preliminary data analysis.

Project Objective

Culverts are a common and often cost effective means of providing transportation intersections with naturally occurring streams or rivers. Fish passage and fish habitat considerations are now typical components of the planning and design of waterway crossings. Many culverts in Montana span streams that support diverse fisheries. The health of these fisheries is an essential element of a recreational industry that draws hundreds of thousands of visitors to Montana annually. Transportation system planners, designers and managers recognize that fish passage through Montana's culverts is a concern. However, there is much contention concerning the impact that a culvert can have on a fishery. Recent basin-wide studies in Montana (Phase I of this project - final report in November 2004) indicate that the tools that some planners and designers promote for forecasting fish passage concerns may be overly conservative. This is

reflected in the diversity of fish passage goals that are being considered by state agencies in the Northwest. Some managers contend that all culverts should pass all fish at all times, whereas others suggest that this is an unrealistic criterion, particularly during high flow events. Which species, life stages, and how many individuals must have fish passage access for how long, are questions that are often brought forward during discussions on the design and retrofitting of culverts to accommodate fish passage concerns. ***The problem is that for fish species and settings in Montana, the timing and number of fish that must pass a culvert to maintain viable species diversity in the watershed is unknown.***

Progress

The hydrologic, hydraulic and fisheries data collected during the 2005 season are now being summarized for future analysis. An example of the fisheries data collected is shown in Figure 1.

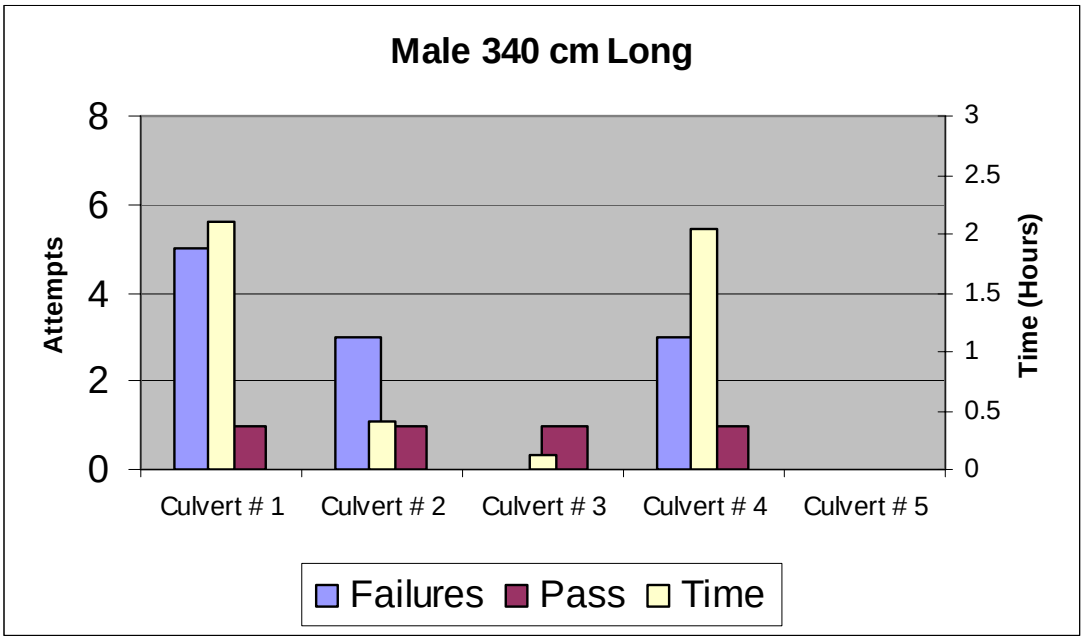

Figure 1. Travel summary for a single fish.

This chart shows that the fish in question passed through all culverts (culverts 4 and 5 are on different stream branches - fish would not normally pass through both). The fish made 4 unsuccessful attempts at culvert number one and passed on the 5th attempt, spending a total of 2 hours in the vicinity of culvert number 1. Similarly, the fish made 3 unsuccessful attempts at culvert number two, passed on the 4th attempt, and spent less than ½ hour in the vicinity. Culvert number three was passed on the first attempt, and

culvert number four required 4 attempts, taking 2 hours in the vicinity. Also recorded and summarized, but not shown here, are the transit times between the culverts, the hydraulic and hydrologic conditions at the time of each attempt or pass by each fish, and the characteristics of the fish at the time it was cataloged. This information is being processed for all fish that were cataloged.

Budget

Expenditures for this cycle are largely a result of stipends. The planned and actual expenditures were reset to equal each other on September 30, 2005 as a result of an approved project extension. The current project has been extended to June 30, 2007.